



SEPTEMBER/OCTOBER 2022

Xplor

MISSOURI'S
FURRIEST
FLYERS



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Pull out this poster and tape it to your wall to make your room look wild.

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ON THE COVER

Silver-Haired Bat

by Noppadol Paothong

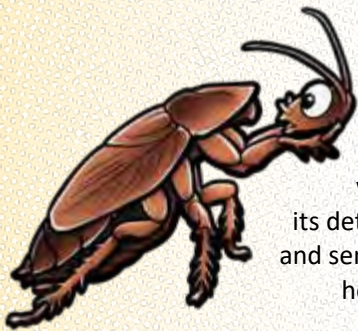
No *claws* for alarm. If you grab a crayfish by its back — biologists call this the cephalothorax (*sef-ah-loh-thor-ax*) — it can't pinch you. Just be sure to put the little mudbug back where you found it.

by Noppadol Paothong

STRANGE BUT TRUE

Your guide to all the
UNUSUAL, UNIQUE,
AND **UNBELIEVABLE**
stuff that goes on in nature

A **PEREGRINE FALCON** can dive through the sky at speeds over 200 miles per hour. To keep air from surging up its nose and popping its lungs like over-filled balloons, the falcon has little bumps in its nostrils that slow down the rush of air.



I'm losing my mind!
Like many insects, a **WOOD ROACH'S** body can survive for weeks without its head. Even weirder, its detached noggin can remain alive and sense its surroundings for several hours until it runs out of energy.

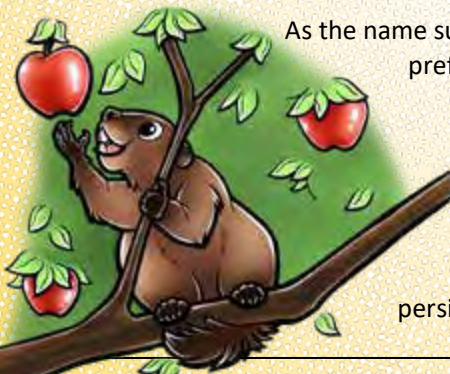


Startle a **LADY BEETLE**, and you might get a stinky surprise. When threatened, the brightly colored insects release blood from their leg joints. The blood smells and tastes awful, which makes most beetle-eaters quickly lose their appetites.

When an **ELK** bugles, it actually makes two sounds at once: a low-pitched roar and a high-pitched whistle. To do this, it blows through its mouth and nose together — kind of like playing a trumpet and a kazoo at the same time.



Good luck, kiddo! **RUDDY TURNSTONE** chicks learn to fly when they're 19 days old. Two days later, they migrate thousands of miles south for winter. Mom and pop have already left, so the youngsters cross the continent all by themselves.



As the name suggests, **GROUNDHOGS** prefer to stay on the ground. Sometimes, however, a groundhog's tummy gets the best of it, and the chubby squirrel climbs into trees to snack on pawpaws, persimmons, and other fruits.

Because their bodies are long and skinny, most **SNAKES** have only one lung. Like people, slither noodles have a windpipe that splits into two smaller airways. The right airway ends in a lung. The left ends in a tiny, useless pouch.



WHAT IS IT?

DON'T KNOW? Jump to page 21 to find out.

- 1 A leathery egg was my home base.
- 2 But now I've hatched from its embrace.
- 3 Insects and rodents are what I chase.
- 4 As I race from place to place.



Ask an OPOSSUM

Hi! I'm Phi, *Xplor's* mail possum. I know a lot about nature. If you have a question, email me at AskPhi@mdc.mo.gov.



Q: What is the biggest tree in Missouri?
— From Margaret, age 4

A: I've climbed lots of trees, but I'm gonna phone a friend to answer this. According to the Conservation Department's "Champion Tree" list, a bald cypress in the Bootheel has the biggest trunk. It's 327 inches around, which means eight 4-year-olds would have to hold hands to reach around it. The tallest tree is a 150-foot scarlet oak at Lake Wappapello. And the tree with the widest branches is a cherrybark oak in Scott City Park. Even bigger trees may be waiting to be found!

HOW TO

COOK OVER A CAMPFIRE

Good food can make a camping trip great. Here's how to cook an easy and super yummy meal for four hungry campers over a campfire.

PRO TIP:

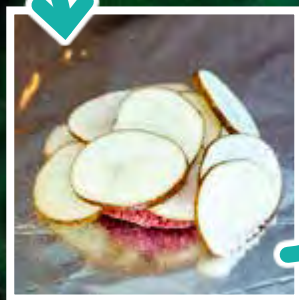
If you forget tongs, you can use two long sticks to pluck foil packets out of the coals.

HERE'S WHAT YOU NEED

- 1 pound of ground beef
- 4 medium potatoes
- 2 cups baby carrots
- 1 cup diced celery
- 1 cup diced onion
- 1 red or green bell pepper, cut into strips
- 4 tablespoons butter
- Seasoning salt
- Salt and pepper
- Heavy-duty aluminum foil
- Plastic zip-top bags
- Long tongs
- Matches or a lighter
- A grown-up to help

PRO TIP:

A Frisbee disc makes a great cutting board or plate. Best of all, after you wash it, you can toss it around to dry it off.



AT CAMP

1. Build a campfire. You'll need a bed of glowing orange coals to cook on, so while you're waiting for the fire to burn down, get the food ready.
2. Cut the potatoes into slices.
3. Tear off four 2-foot-long pieces of aluminum foil. Put a hamburger patty in the center of each foil piece. Sprinkle salt and pepper on the beef.
4. Put potato slices and a handful of veggies over the beef.
5. Put a tablespoon of butter over the veggies. Sprinkle seasoning salt on everything.
6. Fold the foil into packets as shown in the photos. Place the packets with the folds facing upwards on a bed of hot coals.
7. It takes 30 to 60 minutes for the beef to cook and the veggies to get tender. Every so often, pull one of the packets off the coals and check to see if it's done.

PRO TIP:

Be careful when you open foil packets! They're hot and full of steam.

AT HOME

1. Cut up all of the veggies except for the potatoes and put them in zip-top bags.
2. Scrub, wash, and dry each potato. Don't slice them yet, or they'll turn brown before you get to camp.
3. Divide the ground beef into four equal portions. Form each portion into a hamburger patty. Put the patties in a zip-top bag.
4. Store the ingredients in a cold cooler until you're ready to use them.



hidden HUNTERS

female

Rarely seen but freakishly fascinating, purseweb spiders spend their lives hiding in plain sight.

Imagine you're a carpenter ant, exploring the base of a tree. You crawl over a moss-covered vine and follow it up the trunk, searching for a better view. Suddenly, two gleaming black daggers rip out of the vine and stab you in the belly! As everything goes dark, your last thought is: "What in the world just happened?"



DAVID BRUNS



dirty sock
(er, I mean
purseweb
spider house)

Life in a DIRTY SOCK

Missouri has about 400 kinds of spiders, but not all of them spin delicate, beautiful webs. Red-legged purseweb spiders, for example, build tough silken tubes that look like dirty socks.

The tubes climb up the trunks of trees about 6 to 12 inches and extend underground a short distance. Sneaky spiders disguise their tubes with bits of soil from their burrows. Over time, mosses and lichens may grow on the tubes, making them look like innocent vines clinging to tree trunks.

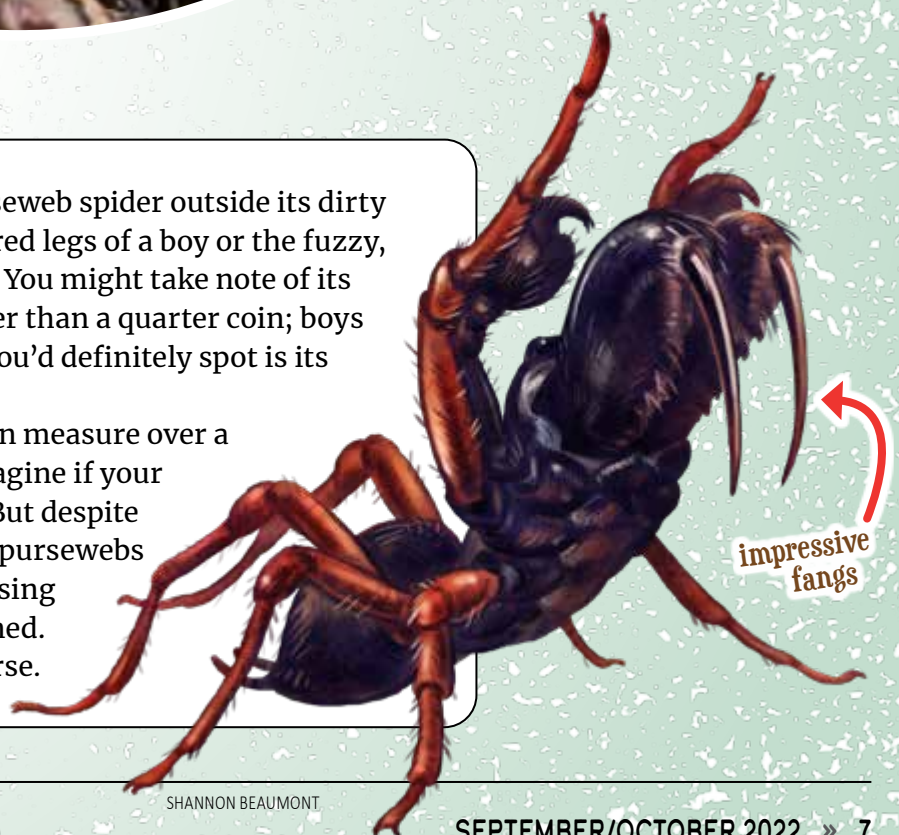
Purseweb spiders spend nearly their entire lives in these hidden homes. Girl spiders rarely, if ever, venture outside. Boys leave their homes only to search for mates — and then never return. The tubes protect the spiders from weather and hide them from predators. They also serve as nearly invisible hunting blinds.

FANG You Very Much

If you're lucky enough to find a purseweb spider outside its dirty sock, you might notice the tomato-red legs of a boy or the fuzzy, chocolate-brown abdomen of a girl. You might take note of its size: Girl pursewebs are a little larger than a quarter coin; boys are slightly smaller. But one thing you'd definitely spot is its ginormous black fangs.

A purseweb's impressive fangs can measure over a third of its overall body length. (Imagine if your teeth were longer than your head!) But despite its scary, vampire-like appearance, pursewebs are shy and gentle, and they avoid using their fangs unless they feel threatened.

Or unless they get hungry, of course.



impressive
fangs

SHANNON BEAUMONT

VISITORS Beware!

A purseweb's tube is attached to the tree only at the top end. It hangs down the trunk and vibrates like a guitar string whenever something disturbs it.

If an insect crawls over its home, the spider feels the bug's footsteps from deep inside its burrow. It rushes up the tube and stabs its fangs through the silk wall into the insect. *Surprise!*

Venom quickly paralyzes the prey. Once the bug stops struggling, the spider slices a slit in the tube and drags its dinner inside. The venom turns the insect's insides to mush, and the spider sucks it up like a bug-flavored protein shake. *Mmmm, yummy!*

Using the same sock as your butcher shop, kitchen, and dining room could create a house-keeping disaster. But pursewebs take out their trash. When dinner is done, the spider stitches up the tear in the side of its tube and tosses the dried-up shells of its prey out the top. Some of the remains stick to the sides of the sock. Others pile up at the base.



Dangerous DATING

In June, male pursewebs search for mates. But leaving the safety of the sock is dangerous. Predators such as birds, reptiles, and other spiders would love to make a meal out of a meaty purseweb.

Luckily, the lovesick spider has a trick up its sleeve — or, rather, its legs. Having a shiny black body and eight red appendages makes it look, at first glance, like a wasp. Since getting stung isn't on many predators' to-do lists, most give the look-alike spider plenty of space.

The male zigzags across the forest floor, following a trail of scents to a female's home tube. Once he gets there, he'll either meet his mate or have the worst day of his life. If the female is hungry, already has a boyfriend, or is just in a bad mood, she'll eat him.

He taps on the tube in a way he hopes will convince the larger female he isn't prey. If she lets him in, the male lives in her burrow for several months until he dies of old age. Then the female eats him anyway. Spiders, you see, aren't sentimental.



DAVID BRUNS

BABY Balloons

There they goooooo!



© CHARLEY EISEMAN

After meeting her mate, the female lays 50 to 140 eggs, wraps them tightly in a blanket of silk, and hangs the sac on the wall of her burrow. The baby spiders, which look like itty-bitty adults, hatch later in the summer.

Biologists aren't sure what happens after that. Some think that the spiderlings spend winter with mom and leave the following spring. Others think they climb out of the tube in the fall, a few weeks after they hatch.

Once they leave, the youngsters probably crawl to a high perch and hang off of it by a strand of silk, like a mountain climber rappelling down a cliff. *Whoosh!* The silk strand catches the wind and launches the spider into the air like a tiny, eight-legged balloon. *Whee!*

The wind scatters the babies across the forest. Once they land, they get to work building dirty socks that will become, with luck, homes for a new generation of hidden hunters.

STRIPED BARK SCORPION

TOXIC TAIL

To subdue prey or defend itself, a scorpion whips its stinger-tipped tail over its body and injects venom.

HAIR TRIGGERS

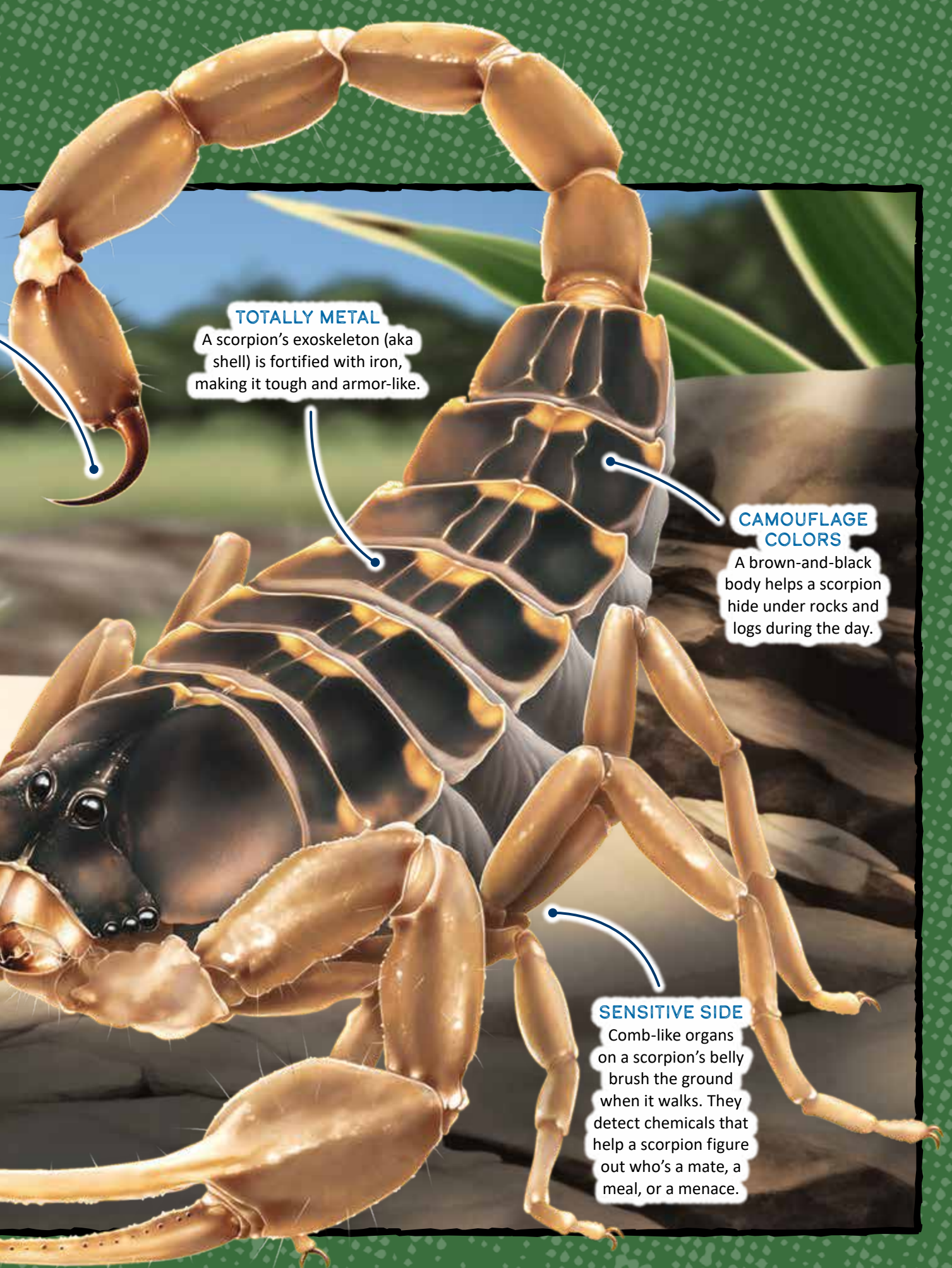
Sensitive hairs on the pincers feel tiny currents of air stirred up by small creatures. If prey zigs, the scorpion zags.

POWERFUL PINCERS

Plier-like pincers on the front of a scorpion clamp down on spiders, insects, and other prey.

PILLBUG





TOTALLY METAL

A scorpion's exoskeleton (aka shell) is fortified with iron, making it tough and armor-like.

CAMOUFLAGE COLORS

A brown-and-black body helps a scorpion hide under rocks and logs during the day.

SENSITIVE SIDE

Comb-like organs on a scorpion's belly brush the ground when it walks. They detect chemicals that help a scorpion figure out who's a mate, a meal, or a menace.



Going Batty

Mysterious and misunderstood, bats are Missouri's furriest and most fascinating flyers.

art by Shannon Beaumont

Let's set the record straight. Bats are not flying rats, they're not blind, they won't get tangled in your hair, and they won't change into vampires. Truth be told, bats are clean, shy, intelligent creatures.

Once you learn a little bit about these furry, flying, bug-munching mammals, you'll discover that bats aren't creepy at all.

In fact, they're *flutterly* fascinating!

Better than a Bug Zapper

Bats, like this big brown bat, save U.S. farmers nearly \$23 billion each year by eating insect pests.

Show-Me Bats

Over 1,400 kinds of bats live worldwide. Most are found in tropical areas. Missouri has about 14 species, including big brown bats, eastern red bats, and gray bats.

Bats are the only mammals that can truly fly. But to stay up, bats must stay slimmed down. Missouri's beefiest bat, the hoary bat, weighs less than a small chicken egg.

Among insect eaters, bats flutter to the top. A mama bat can gobble 100 percent of her weight in beetles, moths, and mosquitoes every night.



Bat-natomy

Bats belong to a group of mammals called chiroptera (kie-rop-tair-uh), which means "hand-wing." Indeed, a bat's flapper has the same bones as a human's hand. A thin but tough scrap of skin stretches across the bones. Bats fly by waving their hands. *Hi!*

Oops! Someone put a bat's legs on wrong. Its knees bend backward and its heels point toward its head. When a bat hangs upside-down, special tendons keep its feet clenched. It has to flex its muscles to make its toes let go.

Flying Fluffballs

Missouri's smallest bat is the tri-colored bat. Often mistaken for a moth, its body is 3 inches long and it weighs less than two nickels.

Acro-bat-ics

If a bat needs a breather from bagging bugs, it rests by hanging from its feet. When coming in to land, it folds up one of its wings and cartwheels upside-down, like a snowboarder doing a trick. To take off, most bats simply drop from their roosts like furry dive bombers and let gravity help them pick up enough speed to fly.

Seeing with Sound

As it flies, a bat sends out high-pitched squeaks. The squeaks hit nearby objects, bounce off of them, and return to the bat's ears. By listening to the echoes, a bat forms a picture in its batty brain of its surroundings. The process, called echolocation (*eck-oh-loh-kay-shun*), is like the sonar that submarines use to navigate.

Silent Roar

A bat's calls are among the loudest made by any animal. Fortunately, they're too high-pitched for humans to hear. Muscles in a bat's ears flex and relax with each burst of sound. This blocks outgoing squeaks but lets in incoming echoes. As a bat closes in on its quarry, it squeaks faster and faster — up to 200 times a second! Who knew the night sky was so noisy?

Blind at Breakfast

Many bats can't squeak with a full mouth. While eating, their echolocation turns off, and they become momentarily "blind."



Danger in the Darkness

Bats aren't the only hungry hunters out after dark. Owls are known to make meals out of their fellow flyers. During the day, snakes, raccoons, and hawks pick off bats while they rest. And summer storms — especially when it rains for several nights in a row — prevent bats from catching enough food.

Bagging Bugs

A bat uses its wings and tail like a catcher's mitt. But instead of catching curveballs, it nabs insects to eat then passes the morsels to its mouth. Eating in flight allows a bat to top off its tummy in only an hour or two.



Baby Bats

In spring, mama bats find a place to raise their babies. Gray bats use caves, but most bats find a hollow tree, cliff crevice, or attic for their nursery.

When the baby is born, mom catches it with her wings or tail. The pup is blind, hairless, and helpless. Mom licks it clean and feeds it milk.

She leaves her pup each night to hunt. When she returns, she finds her baby among the dozens of others by listening for its unique voice.

In an emergency, mom flies her baby to safety. To stay attached during flight, the pup clings to mom's belly with its teeth. *Ouch!*

Her pup grows quickly and is able to fly on its own in about a month.

Mama Mia!

Newborn bats can weigh a third as much as their mom. Luckily, most moms have only one pup. Red bats, however, may have up to four.

Disappearing Bats

A cold-loving fungus infects hibernating bats, growing as a ghostly-white fuzz on their noses, ears, and wings. Bats with "white-nose syndrome" get thirsty and hungry, and leave their caves during winter. Eventually, many freeze or starve.

But that isn't the only bad news for bats. Habitat loss, pesticide use, and climate change all pose dangers to bat populations.





Super Snoozers

In the fall, a bat's thoughts turn to romance. Swarms of furry flyers gather near cave openings. These bat parties help youngsters find winter hangouts and let older bats choose girlfriends and boyfriends.

Most of Missouri's bats hibernate during winter. In this sleep-like state, a bat's temperature drops from 100 to about 50 degrees. Its heart slows from beating 1,000 times a minute to once every few seconds. Bats may wake up every few weeks for a drink, but most don't eat all winter long.

A few species say, "See ya!" when winter weather arrives. Most red bats flutter south where it's warmer. But a few stick around and snuggle under a blanket of leaves on chilly nights.

Snuggle Buddies

You can pack a boatload of bats in an itty-bitty space. Over 300 can snuggle together on a cave wall in a space no larger than this page.



Going to Bat for Bats

Bats need our help! Many species are decreasing in number. Some may disappear altogether. Here's what you can do:

- Stay out of caves that don't allow visitors. You could carry in germs that harm bats.
- Avoid using pesticides. They kill insects that bats eat.
- Don't cut down dead trees. Bats use them for nurseries.
- Build a bat house. Find plans online at batcon.org.



XPLOR MORE

Swamped with Mistakes

Two hundred years ago, Missouri's Bootheel was soggy with swamps. Today, only a few of these wonderful wetlands remain. Otter Slough Conservation Area, Big Oak Tree State Park, and Mingo National Wildlife Refuge are great places to explore in October when swamp-loving trees like bald cypress and water tupelo blaze with fall colors.

Instructions

Something isn't quite right about this silly swamp.
Can you find 10 things that don't belong?





Answer: Bottlenose dolphin, Flamingo, Christmas ornament, Doughnut, Garden gnome, Koala, Toucan, Palm tree, Giraffe, Polar bear

GET OUT!

FUN THINGS TO DO
AND GREAT PLACES
TO DISCOVER NATURE

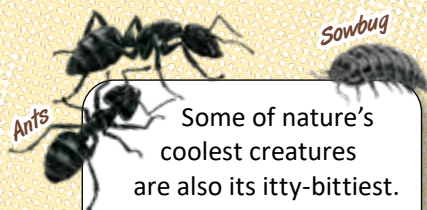


A jumping spider has eight eyes, can leap 50 times the length of its body, and dances to pick up chicks. To celebrate these adorable arachnids, jump around on October 10, also known as **INTERNATIONAL JUMPING SPIDER DAY**.



Look but don't touch! Autumn is the best time to learn how to spot **POISON IVY**. Its leaves turn red earlier than many other plants. For ID tips, visit short.mdc.mo.gov/ZcW.

What's small and gray, flies 40 miles per hour, and performs midair maneuvers that would make a stunt pilot queasy? It's a mourning dove, and there's nothing more challenging than trying to harvest a few. **DOVE SEASON** opens September 1. For info, fly over to mdc.mo.gov/hunting-trapping/species/dove.

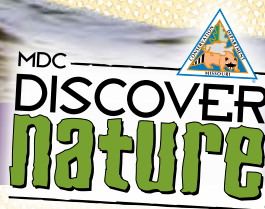


Some of nature's coolest creatures are also its itty-bittiest. To find out **WHAT'S CREEPING JUST UNDERFOOT**, lay down a 3-foot-long piece of yarn in your backyard and explore its length using a magnifying glass.

One of America's biggest birds, the **AMERICAN WHITE PELICAN**, soars over Missouri in October. Look for them at wetland areas, where they gobble up fish to fuel their migration south.



Looking for more ways to have fun outside? Find out about Discover Nature programs in your area at mdc.mo.gov/events.



WHAT
IS
IT?

— FROM PAGE 3 —



EASTERN YELLOW-BELLIED RACER

In August and September, baby eastern yellow-bellied racers hatch out of leathery eggs. The 10-inch hatchlings have tan bodies with dark-brown stripes. As they grow, the stripes disappear and their backs turn bluish-black. Baby racers eat insects. Older snakes add rodents, lizards, birds, and even other snakes to the menu. As their name suggests, racers slither swiftly to catch prey and escape predators. They are found statewide in prairies, pastures, and forest edges.



GO FIND IT!



Cut out this critter card and take it with you outside.
How many of the things on the card can you find?

MONARCH BUTTERFLY



AMAZING MIGRATION

Monarchs fly to Mexico to escape winter weather. Peak numbers pass through Missouri in mid-September.

ORANGE AND BLACK — STAY BACK!

As caterpillars, monarchs munch milkweed, which makes them poisonous. Bright colors warn predators that adult monarchs taste terrible.

TASTEFUL TOES

Monarchs have “tongues” on their toes. When one lands on a flower, it knows in an instant if there’s nectar to eat.

FOOD TUBE

A monarch extends its tubular tongue to sip nectar and curls it back up when it isn’t in use.

FLUTTER FUEL

Monarchs *gain* weight during migration by drinking flower nectar.

To subscribe, cancel your subscription,
or update your address, visit

mdc.mo.gov/xplor.

FREE TO MISSOURI HOUSEHOLDS

GO FIND IT!

Look for monarchs sipping nectar on New England asters, goldenrods, and other fall flowers across Missouri. For more on these amazing insects, flutter over to **mdc.mo.gov/field-guide**.

MONARCH BUTTERFLY

